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BR0FW-E

BRIDGE, RLC

1. GENERAL. This procurement requires a portable, self-contained, solid-state capacitance meter capable of measuring capacitance values, dissipation factors, and dc voltage.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL REQUIREMENTS. The equipment shall be equipped with an internal test generator, an internal dc bias supply, and a front-panel indicator for determining capacitance, dissipation factor, and bias voltage values. Measurement capabilities shall be within the minimum ranges and accuracies specified below. Accuracy statements are specified at 23°C. All adjacent ranges shall overlap by at least 10%.

3.1 Capacitance. Range: 10 nF to 100 mF.

3.1.1 Capacitance measurement accuracy. See table I.

TABLE I. Capacitance Accuracy

RANGE	% OF READING	+ % FS
10 nF	1.0 + 0.9 X D rdg	0.2
100 nF	0.5 + 0.5 X D rdg	0.1
1 uF to 1 mF	0.4 + 0.5 X D rdg	0.05
10 mF	1.0 + 0.5 X D rdg	0.05
100 mF	1.5 + 0.5 X D rdg	0.5
D rdg: reading of dissipation factor		

3.1.1.1 Temperature coefficient, capacitance. ±5 ppm/°C maximum, referenced to 23°C.

3.2 Dissipation factor. Range: 1 to 10. Resolution: 0.01.

3.2.1 Dissipation factor accuracy. See Table II.

TABLE II. Dissipation Factor Accuracy

RANGE	% OF READING +	% FS
10 nF	1.5 + 0.5 X DF rdg	0.2 X CFS/C rdg + 0.3
100 nF to 1 mF	1.5 + 0.2 X DF rdg	0.2 X CFS/C rdg + 0.3
10 mF	1.5 + 0.2 X DF rdg	0.2 X CFS/C rdg + 0.5
100 mF	1.5 + 0.2 X DF rdg	0.2 X CFS/C rdg + 3.0
DF rdg: indicated dissipation factor CFS: full scale of C range setting C rdg: indicated capacitance		

3.2.1.1 Temperature coefficient, dissipation factor. 2 ppm/°C + ((3 ppm/°C) X (frequency in

kHz)) maximum, referenced to 23°C.

3.3 Bias voltage. The equipment shall be provided with an internal dc bias voltage source of at least 2 volts. The capability of operating with an external source of at least 50 Vdc shall be provided.

3.4 Internal test generator. Frequency: 120 Hz. Amplitude: 1.5 Vrms maximum.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Maximum power consumption: 70W.

4.2 Weight. 10 kg (22 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.4 Accessories. The equipment shall be provided with precision test lead sets capable of all configurations required for each measurement function specified above.